The Quertant Method: Building a survey for a pilot evaluation

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Introduction

1) The eyes as an access to the brain

Historically, orthoptics is the field that supported eye exercises as an instrument to recondition or improve eye fusion and teach the control of deviation. After formally becoming a practice in England in 1928, orthoptists worked closely with ophthalmologists, helping individuals, mainly children, to enhance their binocular vision (Helveston, 2005). Binocular vision refers to the overlap between the eyes which exists in all animals possessing both sight organs, and provides perceptive benefits such as resolution, detection, reading, discrimination and eye-hand coordination (Howard, 1995).

In the modern times, vision therapy prescribes eye exercises to combat a myriad of issues, to name a few: vergence, dyslexia, motion sickness, disorders of ocular motility, learning disabilities and amblyopia. While the seemingly abundant usage of these methods may look persuasive, only few studies have been conducted to determine the efficacy and assess the outcome of this kind of therapy. As a matter of fact, one study had found a measurable effect of these ocular trainings in patients suffering from convergence problems (Noto et al., 2013).

Similarly, exercises of the eyes are also practiced in sports to boost performance and used in yoga to foster general well-being. The latter techniques seem to be related to not only states of deep relaxation but also used to lower arousal and promote wakefulness (Hedstrom, 1991). However, the control of the same vision organs is being currently employed in treatments of involuntary psychological conditions and has proved to be exceptionally efficient such as in eye movement desensitization and reprocessing (EMDR) for the treatment of Post-Traumatic Stress Disorder (PTSD) (Ho & Lee, 2012).

The current project discusses a technique known as the Quertant Method, which has been practiced for decades in France and has conveyed good results so far. Using eye exercises, this approach alleges to combat several disorders affecting the functional nervous system often manifested in neuro-vegetative, sensory-motor and even mental disorders. These conditions affect one's daily routines and cognitive performances as they are often comorbid and difficult to isolate, hence the difficulty to treat them medically.

While little has been scientifically reviewed and documented on its legitimacy, there is growing evidence on the relationships connecting the visual system to agents in charge of these disturbances. For instance, visual impairments have been observed in up to 90% of the cases with Cerebral Palsy (CP), a developmental disorder responsible for several motor disabilities in children. In an effort to inspect that, an experiment employed visual tasks with children affected by this condition to discover that control over their ocular movements was quite limited (Gonzalez et al, 2017). By the same token, plasticity mechanisms in the brain have been shown to occur in similar ways in both the visual and the somatosensory cortex (Fox et al., 2005). Alternatively, because eye movements and visual attention are controlled by comparable regions in the brain, Noto and his coworkers used Rapid Serial Visual Presentation (RSVP) to find an enhanced effect of eye exercises on attention and memory tasks (Noto et al, 2013). Additionally, and in a recent study, Oldehinkel and her colleagues used functional Magnetic Resonance Imaging (fMRI). They showed a decreased connectivity between the networks of the somatosensory and visual association in 265 individuals with Autism Spectrum Disorder (ASD) (Oldehinkel et al., 2019).

It is estimated that the visual system treats between 80 and 90% of all incoming information from the environment, ranking for that reason, as one of the most demanding and energy consuming systems in the human brain (Riley, 2010). Correspondingly, sensory systems, are constantly being utilized by us, animals, to monitor the environment through the detection of pertinent features whilst filtering and deducting the irrelevant background information (Lampl & Katz, 2017).

Hence, the pile of the aforementioned scientific ingredients provokes the urge to question whether the entanglement of these systems can precipitate the vast array of disorders affecting our functional Nervous System.

2) The Quertant Method

The Quertant Method (QM) is a neuro-pedagogic method that works by training the eyes to presumably improve the functioning of unconscious and involuntary mechanisms that may constitute a precursor of various neurological and/or psychological disorders. This technique claims to target the central regulatory systems (CRS) of the central nervous system (CNS) and acts by reducing or eliminating their functional issues. In order to access the hub of our sensations, thoughts, emotions and actions that characterize the *CNS*, the Quertant Method focuses on

coaching the *functional visual system* (Marchesseau et al., 1980) through which it supposes the activation of the auto-regulatory capacities of the CNS.

The neuro-pedagogy judges that oftentimes, these natural capacities get misaligned causing a desynchronization of the original self-regulatory systems in the base of the brain. Thus, leading to the emergence of multifarious symptoms or disorders whose origins might become difficult to set apart. These many and usually common disorders can be classified in the following three categories:

- Neuro-vegetative nervous system disorders*; e.g., digestive problems;*
- Sensory-motor disorders; *e.g., dyslexia and stuttering;*
- Mental disorders; *e.g., anxiety and burnout.*

Given the subtle nature of the Quertant Method and the scarcity of scientific background supporting its impact, I have dedicated the past few months to learning about its origins, its tangible effects on individuals who have practiced it, and attempted to find scientific links that may explain the operative aspects of this reported successful neuro-pedagogic method. While pursuing that, I was fortunate to meet with Dr. Catherine Larcher, who has been practicing the Quertant Method for decades now and presently still. With her, I learned and experienced myself an initial trial test that helped me get more in-touch with the psycho-sensory training mechanisms.

To further my knowledge and fulfill the global purpose of this research, I created a Survey comprising 40 questions, designed to collect the impressions of previous Quertant Method learners' and, through their feedback, measure the progression of their conditions. This questionnaire was answered by 23 individuals and targeted multiple facets of the Method. The results recorded will later be discussed in detail.

3) Overview of the Quertant Method

According to optic laws studied in a relationship with the method, the nervous centers responsible for eye movements direct a light beam to the fovea, the most sensitive area of the retina. However, dysfunction arises when the print axis of the eyes and the projection axis no longer overlap (Marchesseau et al. 1980). In other words, the coordination of both eyes falls short on producing a single accurate mental impression, and as a result, the person sees a distorted image.

To practice the Quertant Method, a specific setting is required, mainly a room deprived of light, optic machines such as diploscopes; a tool used to educate the eyes while looking through six circular holes, at stimuli that are generally based on color, oftentimes primary ones, or printed letters, in black ink on a white surface. (Fig. 1) below shows pictures of the typical arrangement of participants looking through a diploscope practicing the Method with color and letter stimuli.

Fig. 1. I *Participants practicing the Quertant Method*

The training commonly happens over two stages; First, an initial assessment is made to identify the participant's functional visual issues that are primarily related to binocular vision. Unlike monocular vision, this type of vision is extremely crucial for depth perception (Howard, 1995). During this first evaluation, the person undergoes a series of tests for a period of time estimated at 1h30. Secondly, the visual reeducation begins depending on the participant's dysfunctional visual aspects determined at the first stage. On average, the sessions last for 30 minutes and are held twice a week, during an extended time stretching from months to even years.

Quertant Method is close in its principle to biofeedback, which is a technique or form of therapy which engages one to monitor their own physiological states in order to modify their functions (McKee, 2008). Neurofeedback, on the other hand, compels the recording of brain activity. It is also often referred to as "EEG" biofeedback (Hammond, 2007). This procedure allows one to gain control over involuntary functions so as to modify those of the autonomic body such as one's emotional states. For instance, EEG attention waves (theta waves) are recorded and the subject is encouraged or reinforced each time their brain is showing higher levels of those waves. Accordingly, they learn to favor their attentional states. Neurofeedback however, acts on a restricted area corresponding, in this instance, to attention EEG waves, whereas the Quertant Method is supposed to reach a much larger spectrum. Although the sessions are prolonged, it remains an exercise that, after few first sessions of guidance, one can pursue it independently using the same tools and stimuli.

4) Background: Who was Georges Quertant?

As the name suggests it, this Method was named after its founder Georges Quertant, born in Digne, France in 1894. Georges grew up in Amiens where he befriended the famous storyteller Jules Verne. Later, he had a long and meaningful kinship with one of the most renown physiologists at the time: Claude Bernard. Claude may have been the most influential person whose work – and friendship – inspired the profound physiological work that Georges embraced subsequently.

At the age of 16, the teenager Quertant was already a musician; composing and playing piano. Not only was he deeply involved in music but also curious about its effects on human beings. By taking advantage of his brother who, then, was a doctor in the "Amiens Hospital", Georges started frequenting the Psychiatric Departments of the building and carefully observing the influence of music on the patients' behavior.

Following the years, he conducted several clinical studies alongside his sibling and, from there, devoted almost 3 decades of his life to research, the understanding of development and the well-being of others. Thanks to his focused work, the admiration of scientists, doctors and educators around him multiplied to make him President of the "Scientific & Literary Society" in Cannes, France. Moreover, in 1952, he was decorated knight of "The Legion of Honor" & received the award of the "Order of Academic Palms distinguished Officer".

With dynamics such as his, George Quertant had an impulse to innovate and blend his music skills with his acquired research skills. Departing from that motivation, he developed the "Psycho-Sensory Culture" that became recognized by the French Ministry of Public Health in 1942. Today it is known as the "Quertant Method" or in the modern tongue as the "Neuro-Sensory Training".

5) The rise of psycho-sensory culture

At the hospital with his brother, Georges studied the influence of sound, using sound pictures on human behavior. Due to the underdeveloped sound technics at the time, he reckoned that the results obtained from the sound stimuli could also be accomplished through light stimuli. From thereafter, the relationship linking the quality of the functional nervous system with the

quality of vision lit up his inquisitiveness. Meanwhile, he condemned the mono-directional attention that physiologists gave then to the ascendant pathways in the brain, traveling from the retina and ending at the cortex, and the negligence of the descendant ones which begin at the cortex and sway toward the retina (Marchesseau et al, 1980).

After expanded research, he suspected that several functional disorders originated from the dysregulation of the nervous system's regulating centers located at the base of the brain. Considering the retina to be the extended window to it, he theorized that the hypothalamus in the brain was directly acted upon through visual stimuli. Today, the existence of a retinal projection to the hypothalamus is recognized after it has been revealed in several experimental studies with animals (Sadun, 2009).

By delving more into the human physiology, Georges started sketching the areas of the brain, distinguishing between those located at the upper part, ensuring the conscious and voluntary activities such as the cerebrum shown in (Fig. 2) as "*télencéphale*" in French. And those found at the base of the brain such as the mesencephalon or midbrain, and the diencephalon shown respectively as "*mésencéphale*" and "*diencéphale*" in (Fig. 2).

According to him, these adjoined areas of the brain containing the thalamus and the hypothalamus, control the involuntary functioning of the organism. (Fig. 3), represents a sketch made by the master of the Method delineating the auto-regulatory centers in the brain that he believes can be reached through the visual system. Given their complexity, a single perturbation affecting these foundational regulatory centers responsible for mechanisms outside of our consciousness, would ostensibly engender multiple repercussions on one's well-being. Here, the artist and scientist spirits of Georges Quertant are exhibited in the immaculate and fastidiously illustrated drawing with explanatory numbers along with their legend.

For instance, number (**8**) represents the "nervous organization of vision" propagating over (**1**) the thalamus, (**2**) the corpus striatum and (**3**) the hypothalamus, branching all the way to the medial occipital lobe where the visual cortex is located.

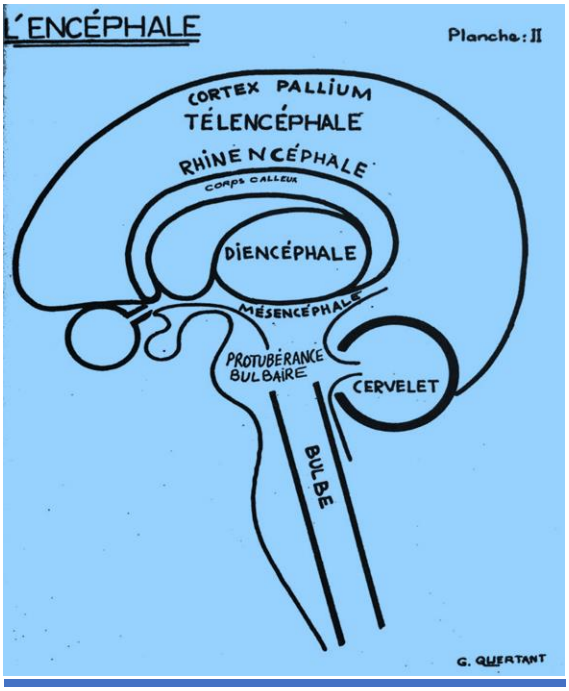

Fig. 2 | *Georges Quertant depiction of the human encephalon*

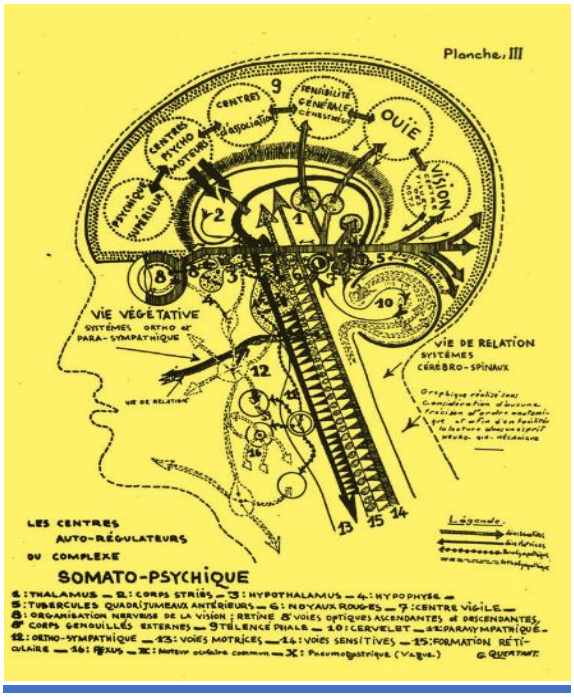

Fig. 3 | *Georges Quertant portrait of the central auto-regulatory systems or the somato-psychological complex*

After his passing in 1964, his works devolved to his daughter Marguerite Quertant born in 1923, who had started following her father's steps as early as in 1939. She then, devoted her time and attention to practice and share the mechanisms underlying this deemed transformative technique and its advantages.

From Cannes where she was born and raised, Marguerite also practiced the Method at the Principality of Monaco. Gradually, she started training educators, and in 2008 she opened the "C.P.S Quertant" standing for the "Centre Psycho-Sensoriel Quertant" in French and translating into "*Psycho-Sensory Quertant Center*". To thank her for her keen dedication and perseverance, the city of Cannes later decorated Marguerite Quertant with the Golden Medal (Marchesseau et al., 1980).

Marguerite's efforts to further promote her precious heritage were reflected in her commitment to its dissemination nationally and internationally. She henceforward took trips to big cities around the world such as Rome, London, Los Angeles and Paris. In there, she presented it in conferences among which were consecrated to medical, mental health and psycho-somatic research. However, and despite her efforts, the Method remained quite confidential.

6) The Quertant Method: How does it work?

The first assessment is generally envisioned for the practitioner to objectively measure the intensity and meaning of the dysfunction. The purpose being to either attenuate or remove it using the eye stimulation. A series of at least 22 tests are conducted, using 3 to 5 optical machines calibrated with the tests presented at different distances. These tests are based on either; colors (blue, red, green and yellow) alone, neutral letters alone, or colors and letters together. Nonetheless, their distances from the trainee are adapted according to the symptoms or disorders affecting their functional nervous system.

The means by which the specific distances used in the diploscopes have been established are empirical. Similarly, the rationale for the use of the color vs. letter customization is unclear. According to Georges Quertant, the letters would operate on the mental related disturbances such as anxiety, phobia and low self-confidence whereas the colors would be associated with one's affective aspects such as emotion regulation and motivation. Although it is now known that the brain uses different neural networks when interpreting colors vs black and white shapes, such as letters in the visual scene, the networks involved in higher level interactions remain elusive.

As far as the distances go, the Quertant Method maneuvers 3 different distances; 1m20, 60cm and 30cm, between the trainee and the stimuli they are facing. Using **1m20** presumably works on general tension and sensorimotricity. **60cm** is supposed to target issues relevant to the neurovegetative or autonomic system such as digestive problems, palpitations, allergies and sleeping disorders. Third and last, are the mental and emotional states supposed to be aimed at from a **30cm** distance.

The head is well aligned with the diploscope during the training. The stimuli consist of, for instance, the letter **D**, **O**, **G** and **E**, each embedded in a color background. Looking at this example of a Quertant test below, one would normally perceive the letters as shown in Fig. (a), where the circles are distinct, and the distances are precisely the same in between. However, according to the method, in the case of hypo-reactivity for example, the eyes converge the middle stimuli resulting in the blending of the colors and/or letters. On the other hand, in the case of hyper-reactivity of the nervous system, the colors and letters are perceived divergently.

Fig. (a) Test normally perceived

Fig. (b) Hypo-reactive Nervous System

Fig. (c) Hyper-reactive Nervous Sytem

With that in mind, the Quertant Method explains how image deviation teaches us about the eye deviation which in turn informs us on the misalignments present in the regulatory system.

I. Building a Survey

Methods

In order to evaluate the effectiveness of the Quertant Method, my project directors, Alice Guyon and Bruno Cessac, in addition to myself thought that the creation of a survey would provide a measured assessment of the opinions and feelings of previous trainees. In this way, it would afford a better understanding of the parameters coming to play a reframing role on one's regulatory systems.

Thanks to Alice and Catherine's contributions, we were able to incorporate and agree on 40 pertinent questions on the survey that was programmed using Qualtrics. Then after, I provided an anonymous link to Catherine who diffused it to 50 of her previous trainees via e-mail or text message (SMS). In this way, participants were able to take it at their will on any of their electronical device (phone, tablets, laptops). For the participants' convenience, the survey was written in the French language. The questions assessed the experience of 23 individuals, 16 women and 7 men, who have previously practiced the Quertant Method with 1 person who is yet currently doing so. The text of the survey is given in Annex 1.

The ages of the volunteers ranged between 9 and 80 years old (*mean*= 51.04, *std*=50.2). Most participants practiced the method for a minimum of 3 months and a maximum of 24 months (*std*= 53.74). Additionally, to assess multiple facets of the Quertant training, the questionnaire was organized in four main sections:

The first one listed 20 major symptoms/disorders that the Quertant Method at which it is supposed to be directed, such as attention disorders, depression, hyper-emotivity, etc. In the first instance, participants were asked the following question "Before the Quertant Method, have you suffered from one or more of the symptoms/disorders below?". They also had to select the conditions they were experiencing maladaptation in before the training. After that, they were asked "Have you felt any improvements on one or more of the following symptoms/disorders?" and had to select the ones where they experienced improvement.

Another section looked at the judgement of the Quertant trainees on the easiness vs. complexity of each of the exercises used during the practice, the questions were formulated in this manner: "During your practice of the Method, which exercises seemed easiest/most difficult for you?". Based on those criteria, participants were asked to rate each stimulus, color and letter, at each of the employed distances (closer, intermediate and farther).

The third section of the survey asked whether the subjects perceived improvements on general traits such as emotion regulation, personality, vision and self-confidence. Volunteers who answered "yes" to experiencing progress were later asked to rate it for each of the traits by choosing one of the three options: "Much better" "Somewhat better" "Somewhat worse". Then, they were invited to describe in few words the observed enhancements in each.

Last but not least, the final section of the survey was dedicated to questions assessing the participants' levels of satisfaction with the training, the final outcome and the Method overall. Coming along with a segment dedicated to additional comments and impressions they may desire to add. To give an example of the interrogations' wording; "Overall were you satisfied with the final outcome of the training?" and ". By the end of the training, did the Quertant Method help you achieve the goals you had set prior to starting it?"

II – Survey Results

Section 1

Chart (1) below, shows the comparative results of all the responses on the 20 conditions in addition to "Claustrophobia", which did not belong to the suggestive list yet was reported by one participant.

Results showed at least 50% improvement on all listed symptoms/disorders, meaning at least half of the participants who reported suffering from certain conditions also reported experiencing improvement on those same conditions.

On several disorders, 100% improvement was recorded, namely on: *Depression*, *nightmares*, *distress*, *nervous fatigue*, *dizziness*, *allergies*, *memory disorders*, *hyper-emotivity*, *digestive disorders*, *memory disorders* and *claustrophobia*. This result brings further evidence to the effectiveness of the Quertant Method since these symptoms fall onto the spectrum of the 3 main functional nervous system dysregulations that Georges Quertant claimed his Method to directly target. Moreover, more than 80% improvement was registered on *migraines*, *stress* and *distress*.

The most compelling evidence figures in the outcome of three other conditions; *attention disorders*, *shyness*, and *obsessions*, that have exceeded the 100%. To put it differently, participants who may have been unaware of the existence of disorders related to their attentional capacity, degree of timidity or obsessive behavior, have realized and declared improvement on them following the training.

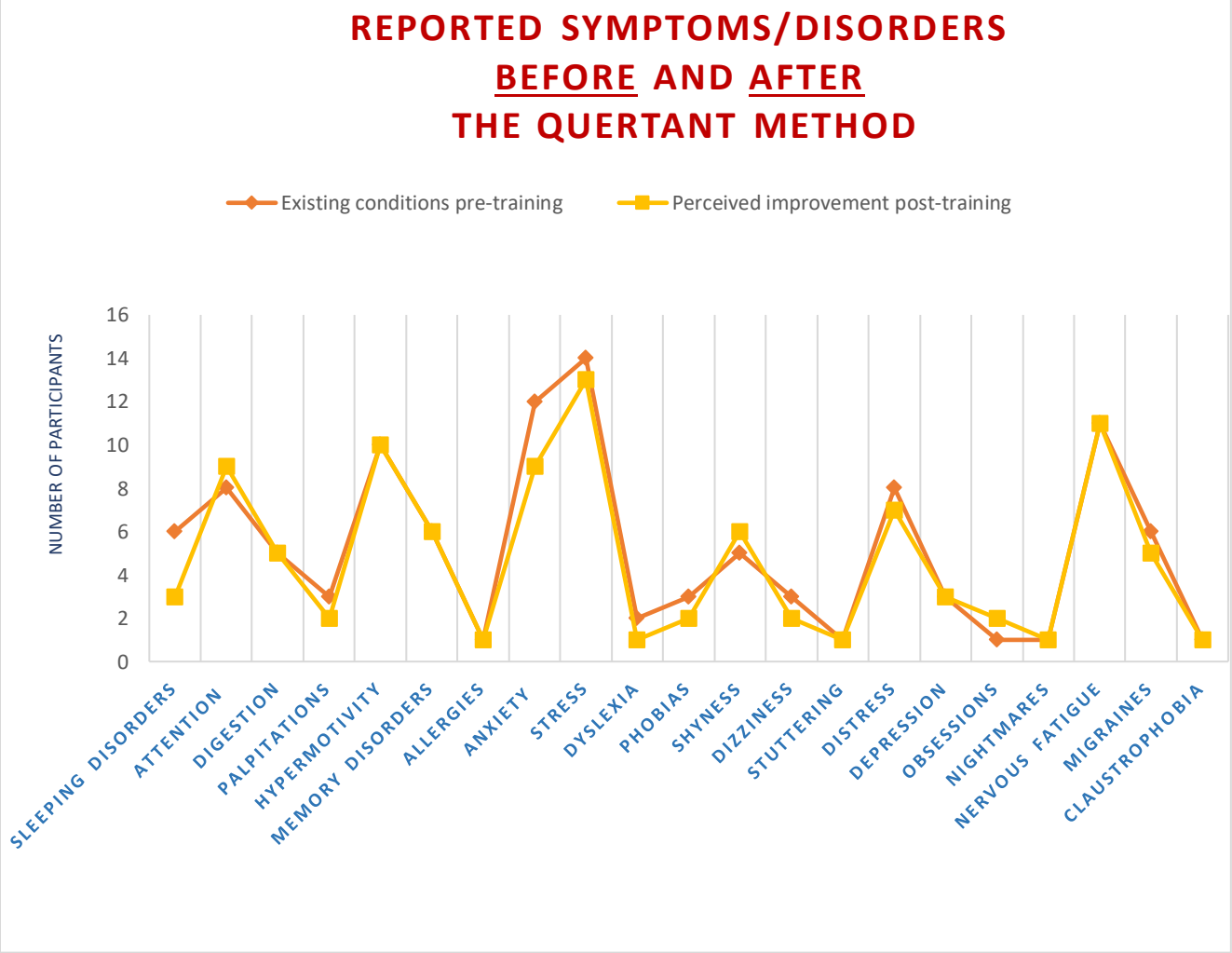

Chart (1) | *Reported symptoms or disorders prior and following the Quertant Method*

Section 2

Overall exercises using color stimuli were found to be easier than letters. However, colors and letters at closer distances (**30cm**) were reported to be the most difficult, whereas the same stimuli were found to be the easiest at a farther distance (**1m20**). Towards the completion of the training, progress was witnessed on each of the visual exercises. More importantly, 12 individuals reported an amelioration of their visual performance on all. Chart (2) below illustrated the results obtained on all exercise ratings in addition to the evolution relayed by the survey takers. The numbers refer to the number of participants' rating each of the exercises based on the level of simplicity, complexity and later progress.

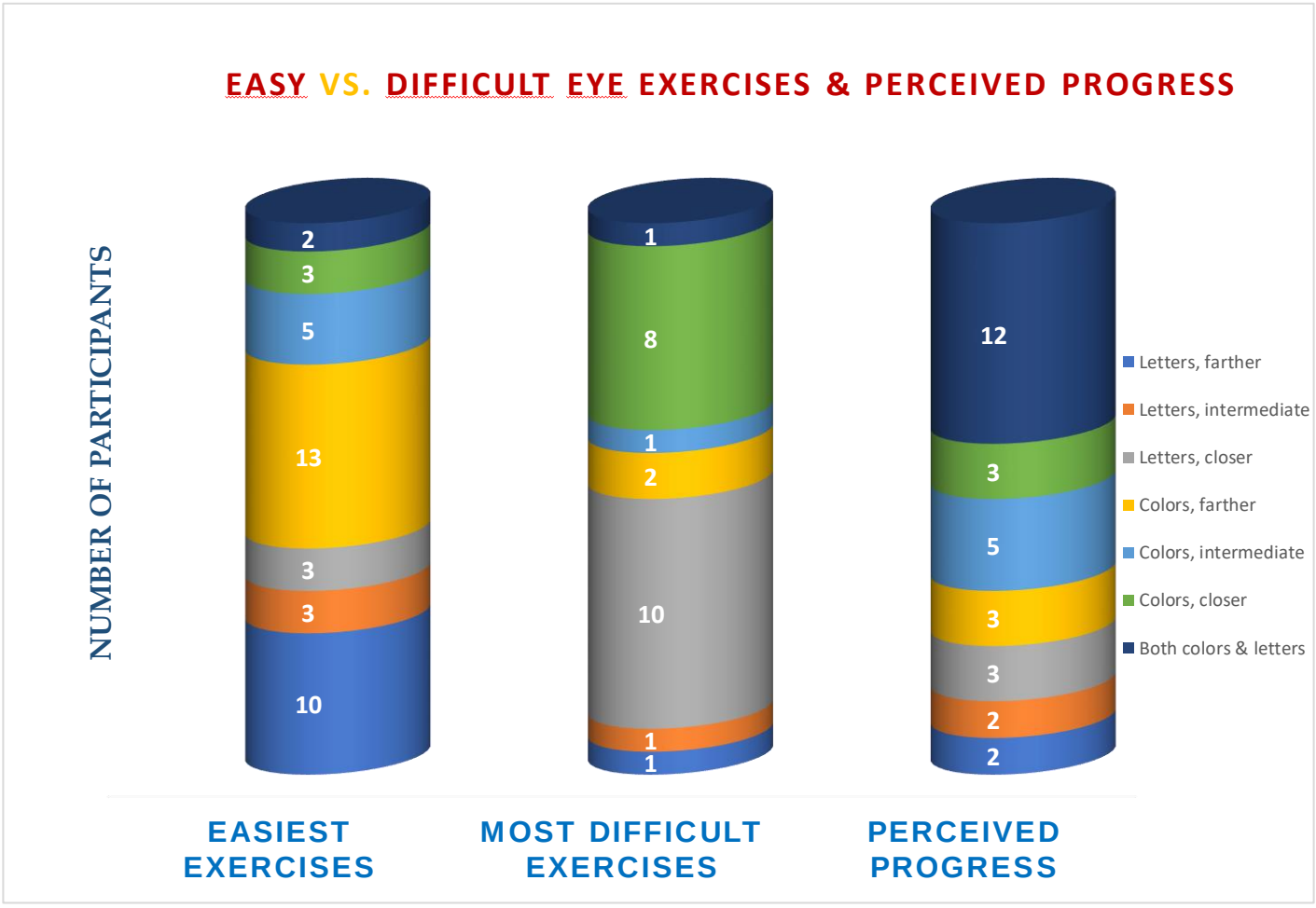

Chart (2) | *Easy vs. difficult eye exercises and perceived progress.*

Section 3

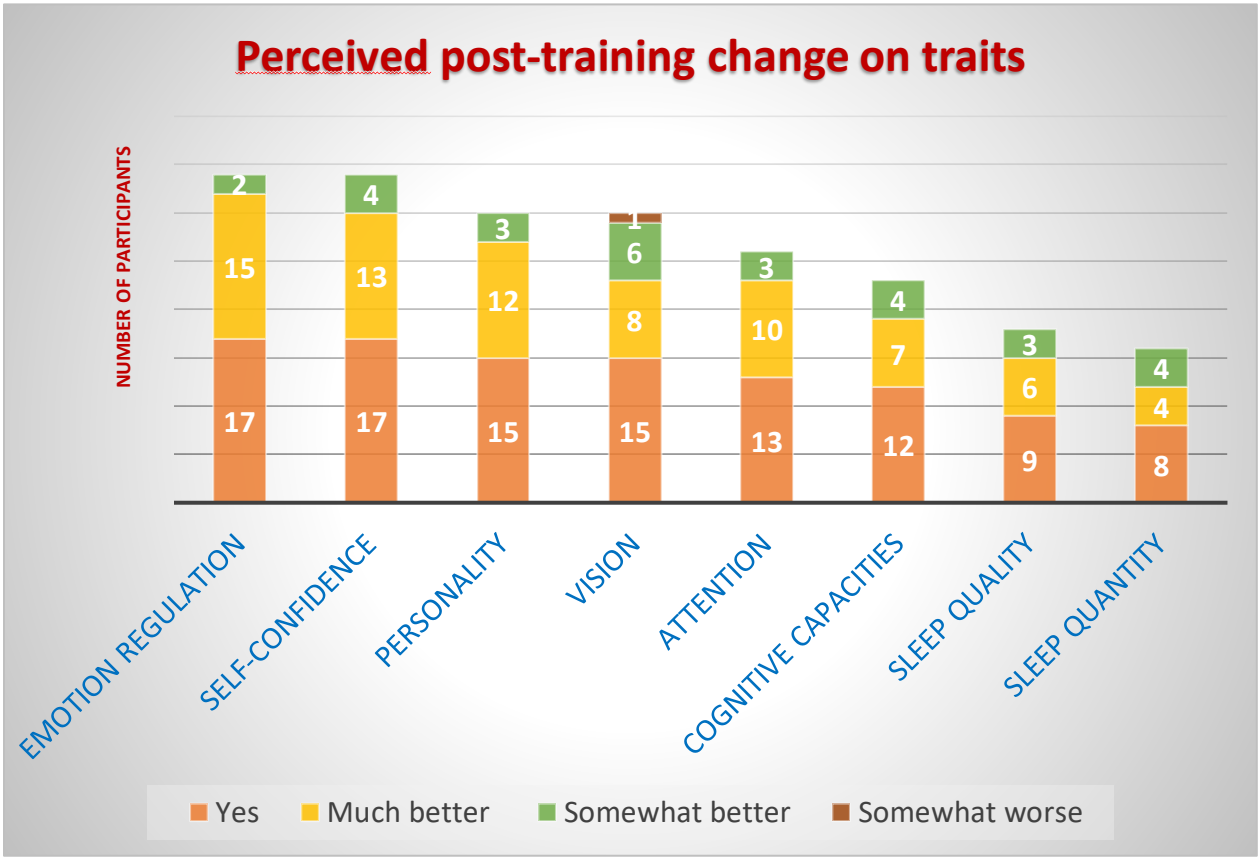

Chart (3) | *Perceived post-training improvements on 7 personal attributes.*

It is visually noticeable on Chart (3) that several improvements were noted on seven personal attributes following the practice. According to these results, the three most improved ones are respectively; emotion regulation, self-confidence and personality. The number of participants attesting feeling a significant improvement (selecting "Much better") exceeds the number of participants reporting a marginal one (selecting "Somewhat better").

Considering that, in this section, a statement was included enabling participants to describe in their own words the changes felt, each trait will be discussed separately.

Emotion regulation:

With 15 individuals reporting great improvements on this trait, comments were revealing of influential impacts and some were even reoccurring among the trainees such as improved ability to step-back mentioned by 3 individuals. Other impressions involved better self-confidence and focus on one' self, stronger ability to let go, decreased impulsiveness, emotional distress and somatization. In addition to that, another impression involving fewer palpitations in extreme situations was also observed.

Self-confidence:

Thirteen individuals reported experiencing a significant improvement related to self-confidence, and 4 additional ones rated it being moderate. Their additional comments involved the following: Enhanced capacity to say 'no' and to stand by one's opinions and to confront people. Better levels of awareness were also mentioned along with increased serenity and firmness, stronger belief in one's capacities. Besides, one participant wrote "I finally feel myself", and another student observed "better classroom participation".

Personality:

About 65% of the survey takers reported experiencing improvements as far as their personalities go, 80% of which estimated these changes as significant. A couple of people reported accentuated feelings of overall positivity, better self-affirmation and confidence. Intensified feelings of calmness and serenity were also mentioned by several. Further shifts were reported such as reduced fearfulness and better grounding.

Vision:

15 individuals reported having better vision, with 8 of them feeling significant changes, 6 moderate and one person reporting a deterioration. Contrary to all other assessments, this was the only case reporting a decline in one of the attributes. This odd event may need to be looked further into to understand the nature of this negative alteration. On another note, the positive opinions were many and remarkably identical across participants. Six individuals pointed out ameliorations related to nearsightedness (distant vision), convergence and ability to perceive fine details. Moreover, among them 3 trainees who declared an increase in their experienced visual field. And finally, 3 additional persons reported giving up glasses, mainly for reading.

Attentional capacities:

One of the main areas the Quertant Method claims having an impact on is one's attentional capacities. According to our survey's results, 10 individuals witnessed a great impact on their attention. One – presumably – student declared being more attentive in the classroom therefore expressing better retention of their course' material. Another Quertant trainee reported working long hours without having any feelings of stress or frustration. Furthermore, other trainees report having better concentration, reactivity and accuracy.

Cognitive performance:

More than half of the survey takers (12) reported progress on their general cognitive performances. Many expressed clearer thoughts and reflections, improved ability to generate faster ideas for finding solutions, better at calculus, and finer perceptions of the world and the environment.

Sleep – Quantity and Quality:

The lowest rate was recorded on this activity with only 9 individuals experiencing changes. This could be explained by the fact that none of the survey takers reported having sleep disorders, therefore not expecting any changes. However, 6 individuals marked a great improvement on the quality of their sleep in comparison to only 4 regarding its quantity. Since the questions tried to assess each sleep aspect separately, no additional comments were given.

Section 4

In this section, one piece of data was omitted, belonging to the subject who had not finished their Quertant Method training yet, resulting in 22 responses instead of the original 23.

Participants' impressions were overall positive and encouraging. For example, the question asking "In general, were you satisfied with the final results?" 21 responses were recorded for "Yes" whereas only 1 person responded "Neutral". When asked about the pedagogy and the methods used, 12 trainees reported it being "Excellent", and 9 rated it being "Good" with one person who remained neutral. Another question was interested in knowing whether these volunteers achieved the objectives they had set to achieve in the beginning. Over 77% (17 individuals) answered "Yes" whereas the remaining 5 noted "partially".

Furthermore, the survey takers seem to be willing to recommend the Quertant Method to their closed ones, as 19 agreed to the statement suggesting whether they would be open to do so, and 3 individuals responded "maybe".

The final question was an open commentary arena where any additional impressions could be inserted. Many compliments were then registered on this section, all received comments on the training are reported on the table below with the exact responses collected in French (left side) and their translated English equivalence (right side).

Do you have any additional comments or impressions to add concerning the Quertant Method?	
Testimonies in original (French) language	**Testimonies translated to English**
Surprenante positivement	Positively **surprising**
Difficile de répondre plus précisément... Le temps a passé et a changé les perceptions...	Hard to answer precisely… Time has passed and my **perceptions have changed**
Cette méthode est très particulière car durant les quelques premières séances je me suis dit que cela n'avait aucune incidence sur moi. Après 3 semaines â un mois de séances, je me suis sentie comme ayant repris le contrôle de moi-même. J'ai suivi cette méthode 2 fois à 10 ans d'intervalle. Elle m'a aidé les 2 fois à effacer cette claustrophobie qui m'empêchait de prendre l'ascenseur, l'avion, passer sous les tunnels…	This is a **unique** Method, during the first sessions I thought that it had no impact on me. After 3 to 4 weeks of training, I felt as I had **regained control** over myself. I followed this Method twice over an interval of **10 years**. It has helped in both instances to eradicate this **claustrophobia** that prevented me taking the elevator, the airplane or crossing under the tunnels…
Très efficace là où les psychologues ne peuvent aller	**Very efficient**, goes where psychologists cannot reach
je crois en son efficacité surtout pour les enfants et les jeunes gens	I believe in its **efficacy** especially with **kids** and younger people
Méthode à faire connaître plus	This Method needs to be further **recognized**
Cela m'a permis de prendre conscience de ma valeur	It has helped me to become **conscious** of my own worth
la personne qui encadre est essentielle à une bonne évolution	The **person guiding the training** is important for a good evolution
Méthode longue mais efficace pour consolider des changements en profondeur	**Long** Method however **efficient** to consolidate deep changes
la faire reconnaître en tant que méthode médicale	Needs to be recognized as a **medical procedure**
Excellent outil thérapeutique	Excellent **therapeutic** tool
Qques séances de tps en tps qq tps après seraient peut être bien comme un suivi à mettre en place	Organizing occasional **follow-up** sessions after the end of the training may be a addition
J'avais 23 ans donc une bonne vue, d'où aucune amélioration à ce niveau	I was 23 years old with good vision, therefore no improvement was perceived

Discussion

In light of these rich survey results, many conclusions can be drawn; first of all, it was demonstrated that the Quertant Method is a practice that satisfies, to a certain extent, its purpose and claims. Although it has not been scientifically tested yet, the testimonies of its loyal mentees bear witness to the revolutionary benefits it may bring about.

It can be argued that the volunteers' investments of time, energy and financial resources may have skewed their perception of the Method, therefore affecting their testimonies. However, it is hard to accept that the individuals who agreed to take this survey along with the thousands of people who have practiced it and certified its authenticity to have fallen prey to a placebo effect. It is also worth noting that some volunteers noticed ameliorations on symptoms they were initially unaware of, thus illustrating an original and genuine point of view.

Alternatively, another factor that may have intervened in these survey results is the gender criterion, given that the number of women (16) largely exceeded the number of men (7) in responding to this questionnaire. It would be worth inspecting in the future, whether this practice has the same impacts on both genders. Likewise, only one child of 9 years old participated in our survey, making it an insufficient representation of the implications of the method during early years. Especially considering the fact that sensory processing disturbances have been found to arise early in development, around the first 3 years of the child's life. Today, with the advancements in research, these disturbances figure among the symptoms of various neurodevelopmental disorders and psychiatric illnesses, such as Autism Spectrum Disorder (ASD), Attention Deficit Hyper Activity Disorder (ADHD), and Obsessive Compulsive Disorder (OCD).

Conclusion

Georges Quertant's precocious understanding of the human brain is visible through his meticulous, extremely detailed, and precise depictions of the Nervous systems, the specialized brain areas and the correlations between our senses and regulatory centers. Although recognized by the French Ministry of Public Health, it is true that little has been scientifically studied to affirm or refute Georges' work. However, evidence supporting his findings may further lie in the positive testimonies of the thousands of individuals who have benefited from his psycho-sensory culture around the rooster country.

This project was initially designed to build a scientific model elucidating the functioning of this Method. For time-related constraints, a review of its background had imposed itself first, leading to the birth of this version. During my examination of the subject I had the pleasure to meet with Catherine Larcher, a psychologist who had trained with Marguerite Quertant and has been practicing the method over decades with both children and adults from both genders. With her, I was able to sit at the trainee's chair and experience the testing myself. Dr. Larcher did her doctorate thesis on this technique, and she testifies of the authentic and life-changing results she has witnessed throughout her experience over the years.

A study looking at the effects of the Quertant Method on children with ADHD has been in the works and coming close to launching, presided by my mini-project Director Alice Guyon, a research director at the Pharmaco-Molecular and Cellular Institute in Nice, France, and who also recently finished her Quertant training. Thanks to her, I was introduced to this Method and came to learn more about its potential involvement in several disorders.

The overwhelming evidence supporting this psycho-sensory training suggests greater prospects in the future. Further studies can use more advanced technological devices such as electroencephalography (EEG) that can be worn during the practice sessions to monitor electrical brain activity of the participants. Comparing by imaging the brain before and after the Quertant Method could also demonstrate the changes occurring during the training. Functional Magnetic Resonance Imaging (fMRI) and Diffusion Tensor Imaging (DTI) could particularly bring to the spotlight the Quertant Method's mechanisms of action in the brain. Additionally, in the context of the modernization of the method, perhaps a virtual version can be programmed and tested via eye-tracking to further knowledge about the precise movement of the eyes during the training. In conjunction with these measures, physiological states can also be supervised to determine whether any observable shifts are happening during the sessions.

Finally, I would like to thank my project directors; Alice Guyon for giving me the opportunity to take part in this exciting project, whose prospects look quite promising, and Bruno Cessac for his input and continuous support. I would also like to thank Catherine Larcher for facilitating the research, the learning and the distribution of the survey.

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Annex 1

Questionnaire : Méthode Quertant

Chère participante, cher participant,
Ce questionnaire a été créé dans le cadre d'une recherche cherchant à établir les bases neuro-scientifiques sous-tendant la Méthode Quertant, ainsi que son influence potentielle sur le système nerveux et la vie quotidienne.
Veuillez noter qu'aucune réponse n'est fausse ou correcte. Nous sommes simplement intéressés par l'évaluation honnête et naturelle de votre expérience avec cette méthode psycho-sensorielle. C'est pourquoi nous vous remercions de prendre quelques minutes (< 10min) pour répondre à ce questionnaire.

Acceptez-vous de répondre à *nos questions concernant la Méthode Quertant?*

- Oui, j'accepte
- Non, je n'accepte pas

MERCI !

Quelles sont vos initiales?

En quelle année êtes-vous né(e) ?

Quel est votre sexe?

- Femme
- Homme

Les questions suivantes visent à connaitre vos impressions sur la Méthode Quertant.

Pratiquez-vous actuellement la Méthode Quertant?

- Oui
- Non

Pendant combien de temps avez-vous pratiqué la Méthode Quertant?

(Veuillez préciser le nombre de semaines, mois ou années)

Quand avez-vous cessé de pratiquer la Méthode Quertant ?

Combien de séances en avez-vous fait jusqu'à ce jour?

Avant la Méthode Quertant, souffriez-vous de l'un ou de plusieurs symptômes/troubles ci-dessous? ***(Veuillez cocher toutes les réponses qui s'appliquent)***

- Troubles du sommeil
- Troubles de l'attention
- Troubles digestifs
- Palpitations
- Hyperémotivité
- Troubles de la mémoire
- Allergies
- Anxiété
- Stress
- Dyslexie
- Phobies
- Timidité
- Vertiges
- Bégaiements
- Angoisse
- Dépression
- Obsessions
- Cauchemar
- Fatigue nerveuse
- Migraine
- Autre(s) ____

Avez-vous ressenti des améliorations au niveau d'un ou plusieurs de ces symptômes/troubles? ***(Veuillez cocher toutes les réponses qui s'appliquent)***

- Troubles du sommeil
- Troubles de l'attention
- Troubles digestifs
- Palpitations
- Hyperémotivité
- Troubles de la mémoire
- Allergies
- Anxiété
- Stress
- Dyslexie
- Phobies
- Timidité
- Vertiges
- Bégaiements
- Angoisse
- Dépression
- Obsessions
- Cauchemar
- Fatigue nerveuse
- Migraine
- Autre(s) ____

Selon vous, est-ce que votre vision a changé après la pratique de la Méthode Quertant ?

- Oui
- Non
- Je ne sais pas

Si oui, dans quel sens ?

- Moins bien
- Un peu mieux
- Beaucoup mieux

Pouvez-vous décrire en quelques mots le(s) changement(s) lié(s) à votre vision ?

Examples: Augmentation/diminution du champ visuel, de la convergence, etc.

Selon vous, est-ce que votre personnalité a changé après la pratique de la Méthode Quertant ?

- Oui
- Non
- Je ne sais pas

Si oui, dans quel sens?

- Moins bien
- Un peu mieux
- Beaucoup mieux

Pouvez-vous décrire en quelques mots le(s) changement(s) lié(s) à votre personnalité ?

Selon vous, est-ce que votre gestion des émotions a changé après la pratique de la Méthode Quertant ?

- Oui
- Non
- Je ne sais pas

Si oui, dans quel sens?

- Moins bien
- Un peu mieux
- Beaucoup mieux

Pouvez-vous décrire en quelques mots le(s) changement(s) lié(s) à la gestion de vos émotions ?

Selon vous, est-ce que votre **confiance en vous** a changé après la pratique de la Méthode Quertant ?

- Oui
- Non
- Je ne sais pas

Si oui, dans quel sens?

- Moins bien
- Un peu mieux
- Beaucoup mieux

Pouvez-vous décrire en quelques mots le(s) changement(s) lié(s) à votre confiance en vous ?

Selon vous, est-ce que votre **capacité attentionnelle** a changé après la pratique de la Méthode Quertant?

- Oui
- Non
- Je ne sais pas

Si oui, dans quel sens?

- Moins bien
- Un peu mieux
- Beaucoup mieux

Pouvez-vous décrire en quelques mots le(s) changement(s) lié(s) à votre capacité attentionnelle ?

Selon vous, est-ce que vos **performances cognitives** ont changé après la pratique de la Méthode Quertant ?

- Oui
- Non
- Je ne sais pas

Si oui, dans quel sens?

- Moins bien
- Un peu mieux
- Beaucoup mieux

Pouvez-vous décrire en quelques mots le(s) changement(s) lié(s) à vos performances cognitives ?

Selon vous, est-ce que la qualité et/ou quantité de votre sommeil a changé après la pratique de la Méthode Quertant ?

- Oui
- Non
- Je ne sais pas

Si oui, dans quel sens?

	Moins bien	Un peu mieux	Beaucoup mieux
Qualité du sommeil	○	○	○
Quantité du sommeil	○	○	○

Les questions suivantes s'intéressent à votre expérience directe avec la Méthode Quertant.

Durant votre pratique de la Méthode, quel(s) exercice(s) visuel(s) aviez-vous fait?

- ○ Avec les couleurs
- ○ Avec les lettres
- ○ Les deux

Durant votre pratique de la Méthode, quel(s) exercice(s) visuel(s) vous a/ont paru plus les plus **faciles**?

(Veuillez cocher toutes les réponses qui s'appliquent)

- ○ Avec les couleurs, de loin (Appareil de repos)
- ○ Avec les couleurs, niveau intermédiaire (Appareil effort moyen)
- ○ Avec les couleurs, de près (Appareil grand effort)
- ○ Avec les lettres, de loin (Appareil de repos)
- ○ Avec les lettres, niveau intermédiaire (Appareil effort moyen)
- ○ Avec les lettres, de près (Appareil grand effort)
- ○ Avec Tous
- ○ Avec Aucun

Durant votre pratique de la Méthode, quel(s) exercice(s) visuel(s) vous a/ont paru les plus difficiles?
(Veuillez cocher toutes les réponses qui s'appliquent)

- Avec les couleurs, de loin (Appareil de repos)
- Avec les couleurs, niveau intérmédiaire (Appareil de repos)
- Avec les couleurs, de près (Appareil grand effort)
- Avec les lettres, de loin (Appareil de repos)
- Avec les lettres, niveau intérmédiaire (Appareil effort moyen)
- Avec les lettres, de près (Appareil grand effort)
- Avec Tous
- Avec Aucun

A la fin de votre pratique, aviez-vous réalisé des progrès au niveau de votre performance visuelle ? ***(Veuillez cocher toutes les réponses qui s'appliquent)***

- Avec les couleurs, de loin (Appareil de repos)
- Avec les couleurs, niveau intermédiaire (Appareil de repos)
- Avec les couleurs, de près (Appareil grand effort)
- Avec les lettres, de loin (Appareil de repos)
- Avec les lettres, niveau intermédiaire (Appareil de repos)
- Avec les lettres, de près (Appareil grand effort)
- Avec Tous
- Avec Aucun

En général, étiez-vous satisfait(e) du résultat final ?

- Oui
- Neutre
- Non

Les questions suivantes visent à connaitre votre niveau de satisfaction/insatisfaction par rapport à la Méthode Quertant.

Globalement, que pensez-vous de la pédagogie utilisée ?

- Très mauvaise
- Mauvaise
- Ni mauvaise ni bonne
- Bonne
- Très bonne

Avez-vous trouvé l'évolution de la rééducation satisfaisante ?

- Très satisfaisante
- Satisfaisante
- Ni satisfaisante ni insatisfaisante
- Insatisfaisante
- Très insatisfaisante

Cette Méthode vous a t-elle permis d'atteindre les objectifs que vous vous étiez fixés au départ?

- Oui
- Partiellement
- Non
- Pas du tout

Conseillerez-vous cette méthode à vos proches?

- Oui
- Peut-être
- Non

Avez-vous d'autres commentaires/impressions concernant la Méthode Quertant que vous voudriez rajouter ?

Nous vous remercions d'avoir pris le temps de répondre à nos questions.
Les informations partagées seront utilisées dans un cadre de recherche neuro-scientifique de la Méthode Quertant.

MERCI !
